ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA

REGIONAL REPORT

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ACRONYMS

APELL	Awareness and Preparedness for Emergencies at Local Level
CFC	chlorofluorocarbon
CGIAR	Consultative Group on International Agriculture Research
CILSS	Permanent Inter-State Committee on Drought Control in the Sahel
EEZ	exclusive economic zone
ECA	Economic Commission for Africa
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ELCI	Environmental Liaison Center International
EMINWA	environmentally sound management of inland water
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
GAW	Global Atmosphere Watch (WMO)
GEF	Global Environment Facility
GEMS	Global Environmental Monitoring System (UNEP)
GEMS/WATER	Global Water Quality Monitoring Programme
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Pollution
GIPME	Global Investigation of Pollution in Marine Environment (UNESCO)
GIS	Geographical Information System
GLOBE	Global Legislators Organization for a Balanced Environment
GOS	Global Observing System (WMO/WWW)
GRID	Global Resource Information Database
GSP	generalized system of preferences
HIV	human immunodeficiency virus
IAEA	International Atomic Energy Agency
IAP-WASAD	International Action Programme on Water and Sustainable Agricultural Development
IARC	International Agency for Research on Cancer
IBSRAM	International Board of Soil Resources and Management
ICCA	International Council of Chemical Associations
ICES	International Council for the Exploration of the Sea
ICPIC	International Cleaner Production Information Clearing House
ICSC	International Civil Service Commission
ICSU	International Council of Scientific Unions
IEEA	Integrated environmental and economic accounting
IFAD	International Fund for Agricultural Development
IGADD	Intergovernmental Authority for Drought and Development
IGBP	International Geosphere-Biosphere Programme (ICSU)
IGBP/START	International Geosphere-Biosphere Programme/Global Change System for Analysis, Research and Training
ILO	International Labour Organization
IMF	International Monetary Fund
IMO	International Maritime Organization
INFOTERRA	International Environment Information system (UNEP)
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCS	International Programme on Chemical Safety
IPM	integrated pest management
IRPTC	International Register of Potentially Toxic Chemicals
ITC	International Tin Council
ITTO	International Tropical Timber Organization

ACRONYMS (Cont'd)

IUCN	International Union for Conservation of Nature and Natural Resources
MARPOL	International Convention for the Prevention of Pollution from Ships
OECD	Organization for Economic Cooperation and Development
PGRFA	plant genetic resources for agriculture
PIC	prior informed consent procedure
SADCC	South African Development Co-ordination Conference
SARD	sustainable agriculture and rural development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRO	Office of the United Nations Disaster Relief Coordinator
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNU	United Nations University
WCP	World Climate Programme (WMO/UNEP/ICSU/UNESCO)
WFC	World Food Council
WHO	World Health Organization
WMO	World Meteorological Organization
WWF	World Wide Fund for Nature (also called World Wildlife Fund)
WWW	World Weather Watch (WMO)

OVERVIEW

The countries of the ESCWA region are characterized by great differences of surface area, natural resources endowment, population, income level of socio-economic development and so on. The environmental degradation of the region is continuing in many areas. However, the regions' identity, shaped by a similar environment and ecosystems, as well as a common heritage and history, compels ESCWA countries to find remedies for the underlying causes of environmental degradation.

During the decades of the 1960s and 1970s, economic growth in the ESCWA region was the highest in the world, primarily due to oil exports. During these years, in a drive for self-sufficiency, the region embarked on a strategy of industrial and agricultural protectionism supported by trade barriers, a strategy encouraged by publicly subsidized energy, water, and agro-chemicals. However, the economic growth of most ESCWA countries during the 1980s witnessed slow or even negative growth, due to falling oil prices. By the 1990s, many ESCWA governments, in their attempt to compensate for the "lost decade", initiated economic reform programmes to improve resource efficiency and encourage private sector growth. In this process, however, the ESCWA region came face to face with the unsustainable legacy of its development strategy, in which unsustainable use of natural resources and widespread environmental degradation were caused by: massive extraction and inefficient use of water for irrigation, encouraged by low or non-cost water and lack of incentives for conservation and allocation to higher value uses; lack of adequate natural resources tenure rights and population, combined with rapid population growth and urbanization; lack of cost recovery by water and sanitation services, which has constrained finances available for extending and improving the provision of services; energy policies with non accountability that continue to supply fuel oil with a high sulfur content and leaded gasoline; high energy consumption in relation to economic output by low energy prices; high polluting public enterprises still responsible for the bulk of industrial air and water pollution; and old, fuel-inefficient and highly polluting vehicle fleets, the replacement of which is discouraged by high import barriers and in particular in populated countries of the region.

Today, as many of the ESCWA countries move towards economic reform and trade integration among themselves and with neighboring countries, particularly the European Union, the region is facing many environmental challenges, such as:

. An increasing number of people are exposed to urban air pollution caused by dust, particulates, lead, and sulfur dioxide;
. Most countries already consume more freshwater resources than can be renewed, relying on the depletion of non-renewable aquifers and/or expensive desalinization of seawater;
. An increasing number of people lack safe drinking water (In particular the case of Iraq) and most rural areas of non-GCC countries suffer from the lack of sanitation and drinking water.
. Land, pasture, and forest degradation is increasing economic pressure on the rural people of regional countries with agricultural potential;

Such problems of unsustainable development need to be addressed in order to diminish the compounded economic and social costs if left unattended. As such, most ESCWA countries have restructured their environmental institutions with the issuance of environmental guidelines, standards, laws, rules, and regulations for proper environmental management. At the national level, ESCWA countries vary in formulating national environmental strategies for the purpose of integrating environmental dimensions into their development schemes. While prior to UNCED the plans simply concentrated on development strategies, some countries now incorporate environmental policies and resource management principles into their development plans. The attached table reflects various forms of institutions at the national level entrusted with environment and sustainable development in the ESCWA region.

National Institutions entrusted with Agenda 21 in the ESCWA Region

Country	Policy Institutions	Executing Agency
Bahrain	Environmental Protection Commission	Ministry of Housing, Municipalities and Environment
Egypt	Office of the Prime Minister	Egyptian Environmental Affairs Agency
Iraq	National Council for the Protection and Improvement of Environment	Ministry of Health
Jordan	Council of Ministers: -Ministry of Municipalities; Rural Affairs and Environment	General Corporation for Environmental Protection
Kuwait	Environmental Protection Council	Various Ministries
Lebanon	Ministry of Environment	Various Ministries
Oman	Council of Ministers	Ministry of Provisional Municipalities and Environment
Qatar	Council of Ministers *	Ministry of Municipalities and Agriculture
Saudi Arabia	Ministerial Committee on Environment	Meteorology and Environmental Protection Administration
Syrian Arab Republic	Ministry of State for Environmental Affairs	General Authority for Environmental
United Arab Emirates	Council of the Federation	Federal Environmental Agency
West Bank and Gaza Strip	Council of Ministers	Ministry of Agriculture
Yemen	Council of Ministers	Environmental Protection

Source: Based on national sources.

* Permanent Commission for Environmental Protection.

ESCWA

AGENDA 21 CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES (with special emphasis on TRADE)

ESCWA countries are aware of the recent increase in the formulation of treaties on environmental protection, which basically involve the formulation of comprehensive umbrella agreements stating the general goals of the parties, but do not impose any mechanisms which oblige them to achieve these goals. International agreements related to biological diversity and natural habitats have been ratified by four countries of the region. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973) has been ratified by three countries: Egypt, Jordan and the United Arab Emirates. Agreements relating to the prevention and control of pollution, which include the United Nations Framework Convention on Climate Change (1992), have been ratified by eight ESCWA countries; the International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification particularly in Africa (1994) has been ratified by four ESCWA countries; the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989), has been ratified by ten countries, and the Montreal Protocol on Substances that Deplete the Ozone Layer by nine ESCWA countries.

As can be noted in the attached table, the level of participation by ESCWA countries in international agreements is moderate, reflecting the prevailing status of least developed country (case of Yemen), the UN imposed economic sanctions (Iraq) and, in some cases, the lack of support or disagreement with the objectives or specific provisions of treaties. The attached table reflects the status of ESCWA countries ratification of international treaties on the environment, including regional seas programmes initiated by UNEP.

It is clear from this review that sustainable development policy is now a concern of virtually all ESCWA countries. However, the programmes, laws, and institutions that have been created have grown haphazardly and are largely sectoral. In most ESCWA countries, different institutions are responsible for agriculture, water, fisheries, mineral resources, occupational and environmental health, development control, human settlements, industry, transport and tourism. Recognition of the inter-sectoral nature of sustainable development concerns is causing an increasing number of governments to develop cross-cutting policies, laws and institutions, and many are also seeking to bridge the gaps between public and private sectors, and non-government organizations. Within the government, the machinery commonly takes the form of inter-ministerial or interdepartmental committees, while the policies are often expressed in national environmental strategies, developed in consultation with sectoral departments. Even then, sustainable development policies are generally implemented through the traditional sectoral machinery.

National, regional and international actions are clearly closely linked. The articulation of regional programmes and institutions, backed by regional conventions and other legal instruments, will help to extend the shared interest among ESCWA regional countries to protect the environment and promote sustainable development. The increasing recognition of global problems is in turn leading to the rapid growth in international legal instruments concerned with the environment. Again, this growth in international obligations poses serious problems for many ESCWA countries, because the obligations they incur are far from cost or resource free.

ESCWA

Status of ESCWA Countries, Regarding Selected International Treaties on the Environment

ESCWA Countries	CITES	Montreal Protocol	Basel Convention	CBD	UNFCCC	Desertification	MAP	Kuwait Action Plan	Red Sea Action Plan
	1973	1987	1992	1992	1992	1994	1975 •	1978 •	1982 •
Bahrain		X	X	X	X			X	
Egypt	X	X	X	X	X	X	X		X
Iraq								X	
Jordan	X	X	X	X					X
Kuwait		X	X		X			X	
Lebanon		X	X	X	X	X	X		
Oman			X	X	X			X	X
Qatar		X	X	X	X			X	
Saudi Arabia		X	X		X			X	X
Syrian Arab Republic		X	X			X	X		
United Arab Emirates	X	X	X					X	
Yemen					X	X			X

SOURCE: ESCWA. Based on Various International Treaties on Environment
• UNEP initiated regional seas programmes

AGENDA 21 CHAPTER 3: COMBATING POVERTY

In terms of poverty, the situation varies among ESCWA countries. However, there are few government programmes which help low-income groups to improve their earning potential or their quality of life. In the cities, the crowding of the poor in communities lacking adequate infrastructure and decent housing leads to an accumulation of waste which increases contamination and unsustainable development.

In synthesis, we are witnessing two interacting processes: the consolidation and expansion of methods of development and styles of consumption which are clearly unsustainable, and the generation of poverty. On the other hand, it is increasingly clear that the unsustainable growth followed in the last few decades has generated pockets of poverty in every society with overall effects on the deterioration of the quality of life, increasing unemployment, decreasing labour productivity, and rural migration to towns and cities. The urban areas of middle-income countries of the region, facing an increasing pressure can not always support the increase in migration from the rural areas, leading to the creation of slums and squatter settlements and the continuation of poverty and deprivation cycles (cases of Egypt and Yemen in particular).

To tackle these problems, ESCWA has initiated various activities during 1995-1996 including technical studies on: measurement of poverty in the ESCWA region; poverty in Western Asia: a social perspective; poverty profiles of Lebanon, Iraq, and Palestine; poverty in the Arab World; a conceptual and methodological framework for poverty alleviation in the ESCWA region; women and poverty in the ESCWA region; poverty in Lebanon; problems of social integration in post-war Lebanon under structural adjustment; poverty and housing in the ESCWA region; and the impact of selected macro-economic and social policies on poverty. In sum, these studies conclude that environmental deterioration, population, health conditions and development are inextricably entwined. Unsustainable development will ultimately affect the health of the people. The human cost expressed in poverty, suffering, and avoidable illness and mortality, is the real cause behind poverty in the ESCWA region. The following table, extracted from studies undertaken by ESCWA, reflect poverty indices (1992) for this region.

Poverty Indices in the ESCWA Region by Country (1992)

Country	Percentage poor
Bahrain	15
Egypt	22
Iran	45
Jordan	23
Kuwait	11 (a)
Lebanon	19
Oman	17
Qatar	11 (a)
Saudi Arabia	(ab)
Syrian Arab Republic	22
United Arab Emirates	3 (a)
Republic of Yemen	47
Western Asia	27

Source: ESCWA (1995), Measurement of Poverty in ESCWA Countries. Bakir, M. "Qiyas AL Faqir Duwal Gharbi Asia"

(a) For GCC countries, the total population non-nationals.

(b) The application of the model gives a figure of 21%, which is believed to be over inflated and may be attributed to the low rate of female enrolment in education.

AGENDA 21 CHAPTER 4: CHANGING CONSUMPTION PATTERNS

No information	

AGENDA 21 CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

It is commonly believed that demographic patterns and trends such as population size, growth rates and distribution, have contributed significantly to shaping the status of development in the ESCWA region, and to increasing the severity of environmental problems. However, problems such as desertification, soil degradation, deforestation, loss of biodiversity, water and air pollution are also the result of other aspects of the human condition, such as cultural, social, and economic status, traditionally acquired technologies, institutional and legal systems, changing consumption patterns and, above all, poverty and its impact on attitudes towards resource value.

In terms of demographic patterns, ESCWA countries vary in population, from little over half a million (Bahrain and Qatar) to well over 62 million (Egypt). Egypt is the largest country of the ESCWA region, with 43% of its total population, followed by Iraq and Yemen (24%), representing the population affected by economic sanctions (Iraq) and the least developed country (Yemen). Jordan, Lebanon, Palestine, and the Syrian Arab Republic, the Western Mediterranean ESCWA countries, represent 17% of the population, followed by the GCC countries (16%). Population growth rates, population density, and urbanization are good indicators of likely environmental stress. Existing population growth rates and densities in countries such as Bahrain, Egypt, Jordan, Lebanon, and Yemen correlate with expected environmental stress in these countries. This environmental stress due to rapid population growth and urbanization is manifested in natural resources deterioration, affecting particularly the quality of air and water. Another environmental impact of a rapidly expanding population is the increased pressure on arable land, both as a result of intensified agriculture, and the loss of land due to the expansion of human settlements.

In the area of demographic dynamics and sustainability, the ESCWA secretariat has initiated several technical studies on: Demographic and related socio-economic indicators; database for demographic estimates and projections. Furthermore, in cooperation with the UNFPA, the secretariat organized an expert group meeting on population policies and sustainable development in the Arab region (December 1996).

AGENDA 21 CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

No information	

AGENDA 21 CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

In the past two decades, the cities of the ESCWA region have seen the most radical transformation ever experienced in their millennia of urban development. Within the space of a single generation, urban population has increased drastically. This high growth rate has been fueled by massive rural to urban migration, prompted by grinding rural poverty and agricultural land degradation, a consequence of over-cultivation and over-grazing, induced by an increase in the region's population.

During the first half of the nineties, about 56 percent of the population of the region was estimated to live in urban areas. However, with current growth rates, the region is expected to become predominantly urban in the next 25 years, with the proportion of population living in urban areas expected to reach 59 per cent by the year 2000.
(refer to the table below)

Such an increase has considerable implications on human settlement development, even if present densities are maintained (countries with urbanization rates over 70% include Bahrain, Iraq, Jordan, Kuwait, Lebanon, Palestine, Qatar, Saudi Arabia, and the United Arab Emirates), the overall extent of urban areas will increase with tremendous pressure on infrastructure and deterioration of environmental conditions. From an economic, environmental and social point of view, waste is a particularly acute problem confronting big cities in the region. There are a few fairly well known examples which can be mentioned with regard to economic waste. The first relates to the part of urban material endowment (roads, for example) whose size is not determined on the basis of actual hours of peak use. Another example relates to the premature obsolescence of some urban property in expensive areas of cities in which buildings are razed although they are still in good condition, and replaced by others which allow for denser occupation of the land, hence gaining greater financial return from it (Cases of Cairo, Beirut, and Damascus).

In conclusion, the issues of urbanization and urban settlement development are closely linked to the state of the environment and poverty. Although this is a worldwide fact, in the case of ESCWA region, the link between environment, poverty and urbanization is more pronounced due to the specific socio-economic and demographic characteristics of the region, and the priority given by ESCWA countries to the objectives of the various programme areas outlined in chapter 7 of Agenda 21. These include also rapid urbanization and economic growth of large cities and coastal areas, very low arable land, and the persistence of poverty in rural and urban areas of middle-income countries of the region. To remedy this situation, ESCWA has recently undertaken the following research activities: technological and social aspects of upgrading and revitalizing settlements; regional perspective of human settlements in ESCWA countries; proceedings of the expert group meeting in preparation for the UN Conference on Human Settlements, Habitat II; and poverty in West Asia: extent and measures for its alleviation: crisis, poverty, and shelter.

Urban Growth Rates for ESCWA Countries

ESCWA Country	Urban growth rates (%) 1980-1985	Urban growth rates (%) 1990-1995	Urban growth rates (%) 2000
Bahrain	82.3	83.6	85.5
Egypt	44.35	44.35	46.4
Iraq	67.15	73.2	77.1
Jordan	62.0	69.75	74.5
Kuwait	92.0	96.4	97.7
Lebanon	76.25	85.5	89.5
Oman	8.4	12.1	15.7
Palestine	91.25 (*)	77.95	80.6
Qatar	86.75	90.65	92.6
Saudi Arabia	69.9	78.75	81.8
Syria	47.55	51.3	54.9
United Arab Emirates	74.2	82.45	86.2
Yemen	22.3	31.25	38.4
ESCWA Region		56.0	59.0

Souces: United Nations and World Urbanization prospects 1994.
(*) The figures apply to Gaza Strp only.

AGENDA 21 CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING
(See pages vii and viii at the beginning of the profile)

The prevailing systems for decision-making in many ESCWA countries tend to separate economic, technological, social, and environmental factors at the policy, planning, and management levels. This influences the actions of all groups in society, including government, industry, and individuals, and has important implications for the efficiency and sustainability of development. An adjustment or even restriction of decision-making, in the light of each country's specific conditions, may be necessary to accord priority to environmental and technological concerns and a full integration of these factors. Significant changes in the institutional stuctures of governments would be necessary to enable a more systematic consideration of the environment when decisions are made on economic, industrial, technological and other sectoral policies. New forms of dialogue should also be developed for achieving better integration among regional, national, and local institutions representing industry, science and research, development centers, academics, environmental groups, and the public, in developing effective approaches to the integration of environment and development in decision making. It is for this reason that a number of ESCWA countries have set up interministerial working groups or commissions empowered to ensure effective cooperation among all government departments concerned.

More extensive use of analytical tools for improving decision-making, such as cost-benefit analysis, environmental impact assessment, and environmental indicators and accounting, can also contribute to policy integration by making both private and public decision makers more aware of the environmental consequences of their actions. The EIA, as an environmental management tool is gaining popularity in the ESCWA region. However, the use of environmental audit has not yet become common practice due to various reasons, including the reluctance to release information pertaining to their environmental records and the possibilities of legal requirements to protect the society at large from harmful pollutants (Case of Lebanon).

AGENDA 21 CHAPTER 9: PROTECTION OF THE ATMOSPHERE

Environmental problems of industrial origin and issues regarding atmosphere are a relatively recent phenomenon in the ESCWA region, although some countries, such as Egypt, Iraq, Saudi Arabia, and the Syrian Arab Republic have for a long time experienced the adverse impacts of industrialization in certain parts of their region. The nature, scope, and extent of the impact of industrial development, and hence the protection of the atmosphere vary in different areas of the region.

At the policy statement level, all ESCWA countries seem to have acted to abate industrial pollution, promote new and renewable energy sources, facilitate cleaner transportation fleet and protect the atmosphere. However, there has been a failure to translate these statements into action depending on the socio-economic situation of individual countries. Some policy makers in the middle-income group of countries in the region disregard protection of the atmosphere, due to economic hardship, unemployment and poverty, regardless of its environmental impacts. Furthermore, while environmental consciousness is taking root, it is happening rather slowly in the industrial and business sectors in the region. The private industrial sector in the region has neglected adopting environmentally friendly technologies and incorporating issues regarding the protection of the atmosphere in their production process. This reflects the low-level of research and development which is undertaken by private firms for the development of environmental technology research. The major obstacles to the "greening" of industry, transport, energy and business in the region are caused by existing environmental policies which do not correct biases caused by the underpricing of natural resources; they do not ensure that new industries and plants employ the cleanest technology available, or that existing plants are upgraded as necessary and practicable, and they do not promote "green" consumerism.

AGENDA 21 CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

The land use pattern in the ESCWA region has undergone continuous changes, manifesting the impact of the complex interplay of socio-economic, political, and technological forces. A comparison of land use patterns in ESCWA countries with the rest of the world shows the scarcity of arable land in the region. While the world's average of arable and cropland is 11 percent, it stands at 4.3 percent in the ESCWA region, compared to 15 percent in the Asia-Pacific region. The desert terrain and other unfavorable agro-ecological land is about 63 percent of the total area of the ESCWA region. Furthermore, the limited arable land is suffering from intense development and population pressure. There is a tendency towards more intensive and extensive cultivation in countries with the most croplands, which also have high population densities. The population pressure on arable land is noticeable in Egypt, Jordan, Iraq, Lebanon, the Syrian Arab Republic, and Yemen. Irrigated land is being cultivated year-round, with increasing applications of water, fertilizer, and pesticides. Simultaneously, large areas of fertile land are being taken out of production for urban, transport and industrial needs, land of low quality is being overused as herds overgraze ranges, and marginal farmers cultivate low rainfall areas without adequate following or fertilization.

This pressure on the land is being felt on a region where the land surface itself is generally fragile, often already degraded, and subject to high levels of natural erosion exacerbated by severe sand storms and population densities. Nonetheless, the historical process that has shaped the ESCWA region's landscape is continuing at an accelerating rate and great socio-economic cost. Land previously under agricultural production has given way to urban settings, and new areas of cultivation are unlikely to compensate for the loss of agricultural land to urbanization and related transport networks. Furthermore, expensive land reclamation and intensification efforts are proceeding as productive and scarce arable lands are irreversibly lost to urbanization, municipalities and industrial uses. The new and little reported expansion in arable land area in the ESCWA countries has taken place at the expense of natural rangeland.

On policy issues, regional countries differ, depending on their economic status, availability of resources and population pressure, to the degree of moving from current unsustainable management of land resources to a sustainable and integrated management of the same resources. Most ESCWA countries are giving priority to land management to preserve their food security status and to strengthen and improve institutional mechanisms for land management resources.

AGENDA 21 CHAPTER 11: COMBATING DEFORESTATION

The forest and woodland in the ESCWA region occupies about 1.03 percent of the region's total area. The distribution of forests varies among the countries of the region, depending on physical, ecological and social factors. Four countries, including Lebanon, the Syrian Arab Republic, Iraq, Jordan and to some extent Yemen have forest areas in the region. However, deforestation continues to be a problem of serious concern in Iraq, Lebanon, and Yemen. Furthermore, forest cover has declined dramatically in the countries of the region during the past decades. Countries such as Iraq, Lebanon, and Yemen have suffered extensive loss of forests accompanied by soil erosion, as a result of conflicts and civil war, which have caused widespread environmental problems with negative socio-economic and ecological consequences.

As far as policy objectives of chapter 11 of Agenda 21 are concerned, there is diversity of forest policies among the countries of the region, depending on their awareness of future and current priorities. At the national level, the main focus of concerned countries has been on forestry plans, rules and regulations, institutional developments and implementation of programmes related to proper management and protection of forests. Some countries such as Jordan, Iraq, the Syrian Arab Republic, and Lebanon have made provisi- is in their national development plans for protection of forests. Other countries' concerns are reflected in the establishment of departments relating to forests and environment.

AGENDA 21 CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

More than three quarters of the ESCWA region is desert, and an increasing part of the permanent pasture areas is subject to erosion because of reduced vegetation cover. In addition, much of the cropland is losing its inherent productivity because of poor agricultural practices. Soil erosion is another aspect of the desertification process in the region, which begins with intensive livestock grazing. Furthermore, dry land salinity is causing serious problems in Western Asia, due to reduced evaporation, allowing salts to concentrate in the low-lying parts of the landscape. In Egypt, for example, an estimated 32 percent of the Nile Delta and 30 percent of the Nile Valley are affected by salination and water logging, lowering or totally eliminating their potential for crop production. Much of Egypt's salination is recent, the result of excessive water use and inadequate drainage. In Iraq, salinity and water logging affect more than 50 percent of the lower Rafadain Plain. In the Syrian Arab Republic about 50 percent of the irrigated land in the Euphrates Valley is seriously affected by salinity and water logging.

The problem of land degradation in the ESCWA region's arid and semi-arid areas (desertification), is being tackled through a variety of measures including increased vegetation cover, plants for dune stabilization, and improved land use practices. The secretariat of ESCWA, in cooperation with UNEP and regional countries, has produced various desertification control plans to address the issue through appropriate policy intervention, along with national authorities and community involvement.

The United Nations Conference on Desertification (Nairobi, 1977) played a major role in increasing awareness of the serious threats to land from unsustainable exploitation and anthropogenic pressures at both national and international levels. It also resulted in the initiation of several actions at these levels to arrest further spread of desertification. During 1993-1995, the ESCWA secretariat completed the following related technical reports: Desertification control project, integrated natural resources management for sustainable development in Bahrain; The national plan of action to combat desertification in the Sultanate of Oman; The national plan of action to combat desertification in the United Arab Emirates; and Resource conservation policies and strategies for agriculture in the Syrian Arab Republic.

A recent major international achievement is the development of the International Convention to Combat Desertification, which was initiated at UNCED. The convention was developed through negotiations in Paris on June 18, 1994. Most ESCWA countries have adhered to this convention. Furthermore, ESCWA participates actively in the deliberations of the Steering Committee on Desertification of the Council of Arab Ministers responsible for the environment. This Committee meets annually and is an umbrella network for government representatives and other regional research and training institutions concerned with desertification. However, considering the severity and complexity of desertification and the magnitude of its negative consequences, current efforts to promote preventive approaches for the control of land degradation are far too inadequate and uneven in the ESCWA region as a whole.

AGENDA 21 CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

No information	

AGENDA 21 CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

Among the causes of unsustainable agricultural practices and degradation of agricultural land in the region are the inadequate or inappropriate policies which include pricing, subsidies, and tax policies which have encouraged the excessive and often uneconomic use of inputs such as fertilizers and pesticides, and over exploitation of land. These policies, together with supporting economic and financial policies, have contributed to a rate of depleting of land and water resources in many ESCWA countries which have not been sustainable in the long run. Furthermore, although various other economic and social factors are responsible for land degradation in the ESCWA region, the deterioration of agricultural land is leading to a decrease in food security in many ESCWA countries in the short run, and to over exploitation of the natural resource base, on which agriculture depends in the long run. Taking population increase into consideration, the per capita arable land and, consequently, per capita food production in some ESCWA countries are deteriorating further than its level in the seventies. This situation is particularly visible in Egypt, Iraq, Jordan, the Syrian Arab Republic and Yemen, where the decrease in per capita food production was partly due to the inefficiencies of land use, fragmentation and reduction in arable land per agricultural population (refer to the table below).

In line with promoting the main programme areas relevant to the ESCWA countries, the secretariat, in cooperation with the Council of Arab Ministers Responsible for the Environment (CAMRE), organized an inter-Arab regions conference (Cairo, september 1994) on sustainable agriculture and rural development. The broad objectives of the meeting were: (i) to increase the awareness and mobilize the agricultural sector to implement related chapters of Agenda 21 and Arab Programmes for Sustainable Development (APSD); (ii) to promote priority programmes, at the national level, related to chapter 17 of Agenda 21 and other relevant Agenda 21 programme areas; (iii) promote inter-regional and regional cooperation for the implementation of (APSD) and; (iv) to exchange views and experience in preparing plans and programmes of action related to (APSD), and the identification of priority areas of joint action programmes for the implementation of chapter 10, 11, 12, 14, and 15 of Agenda 21. The recommendations of the meeting covered issues of: (i) macro-economic adjustment and agricultural policies; (ii) regional institutional framework for sustainable agriculture and rural development, (iii) human development and participation; (iv) land-use development; (v) water conservation and management; (vi) chemical uses in agriculture; and (vii) use of modern technologies.

At the secretariat level, ESCWA continues its capacity building for member countries in addition to training, field projects and promotion of integrated agricultural development along the main objectives of chapter 14 of Agenda 21. At the national level, ESCWA countries differ in priority settings and initiatives according to their socio-economic and agricultural realities and visions.

Arable Land, Food Production and Food Self Sufficiency in Selected Arab Countries

Country	Arable land per head of agricultural population		Per capita food production index 1979-1988=100	Food staples self sufficiency ratio	
	1965	1988	1986-1988	1965-1967	1986-1988
Egypt	0.16	0.11	111	83	56
Iraq	1.2	1.35	105	98	37
Jordan	0.71	1.56	111	84	12
Oman	0.03	0.03	100	32	1
Syrian Arab Republic	2.28	1.68	93	100	84
Yemen (former PDRY)	0.14	0.15	85	99	59
Yemen (former YAR)	0.37	0.27	118	61	40

AGENDA 21 CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

The first organized societies evolved in the ESCWA region (Egyptian, Babylonian, Phoenician, Byzantine, and Arab Empires). They all prospered because their people mastered the skills of irrigation, agriculture, plant and animal domestication, hunting and fishing. Their activities covered a mosaic of landscapes that included desert, oases, dry land, wet land, mountains, plateaus, planes, lakes, marshland, and coastlines along the Indian Ocean, the Mediterranean Sea, the Red Sea, the Gulf of Aden, and the Persian Gulf. However, the excessive use of these resources caused their depletion or degradation of the habitat, where the process of desertification started. A number of these early cultures made efforts to allocate and control the use of diminishing resources in their arid region. These measures included, for example, the strict rationing of water, access to grazing and the cutting of trees, firewood collection and agricultural land ownership. Unfortunately these control measures did not stop natural resource degradation. Hence, in the ESCWA region widespread negative impacts on biodiversity are occurring mainly through habitat destruction caused by the pressures of population growth, ignorance, poverty and economic development.

Due to the lack of accurate information in many ESCWA countries, there is uncertainty regarding the present status and trends of biodiversity. This deficiency is now being addressed by various organizations, both at the national and regional levels. On the whole, there is little information on species and reliable data is generally limited to certain mammals and birds. The population status of these groups is used as an indication of species diversity. Species inventories have not been completed, but are currently being undertaken in a number of countries in the region (i.e. Jordan, Oman, Saudi Arabia, and Yemen). Furthermore, some ESCWA countries have ratified the Convention on Biological Diversity and the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The status of ESCWA countries on these two conventions was reflected in the first part of this report.

In response to international pressure and national awareness, many ESCWA countries have began to establish a system of protected areas in an effort to combat habitat destruction and loss of biodiversity. However, the administration of national parks and protected areas are under various public authorities with conflicting rather than complimentary plans of action. According to the latest (1995) List of National Parks and Protected Areas, protected areas total about 251 million hectares or just about 5.4 percent of the total in the ESCWA region.

In October 1995, ESCWA participated in planning and convening "The Meeting of the Arab Expert Group on Biodiversity in Arab Countries", to underline the programme objectives of chapter 16 of Agenda 21 and the Convention on Biodiversity and its implications for the Arab countries. This meeting focused on the following themes: the state of biodiversity in the Arab countries, according to available data; ways and means for biodiversity conservation in the Arab region ; biodiversity in the context of sustainable development; and the institutional and legal framework as means for capacity building to enhance biodiversity conservation in the Arab countries. The Arab Center for the Study of Arid Zones and Dry Lands (ACSAD), which acted as technical secretariat for the meeting was requested to follow-up on the recommendations of the meeting including the initiation of a Pan-Arab Biological and Landscape Diversity Strategy. Furthermore, the Arab countries were requested to establish a national committee to coordinate among various national institutions matters related to (i) National policy and action plans for the conservation and sustainable use of biodiversity; (ii) Establishment of natural habitats and national parks to preserve different elements of biodiversity for future sustainable utilization; (iii) Adoption of a national strategy for public awareness, education and technical training for the preservation of biodiversity. At the regional level, the need for clear, precise and practical guiding principles was recognized. In this context, reference was also made to the need to initiate an innovative, pro-active and cooperative approach to limiting the degradation of biodiversity in the Arab region. Furthermore, another follow-up meeting is scheduled for 1997 to elaborate on the Pan-Arab Biodiversity Strategy.

AGENDA 21 CHAPTER 16: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY

No information	

AGENDA 21 CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES

No information	

AGENDA 21 CHAPTER 18: PROTECTION OF THE QUALITY AND SUPPLY OF FRESHWATER RESOURCES: APPLICATION OF INTEGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES

A survey of the availability of water resources indicates that there are large variations from country to country within the ESCWA region, depending on the physiographical and hydrogeological setting. Among ESCWA countries, Egypt, Iraq, the Syrian Arab Republic, and Lebanon, have relatively dependable surface water sources, in the form of major rivers and springs. River flow in these countries originates both within and outside of national boundaries. In addition to available surface water, the water supply is supplemented through extraction from groundwater reserves in Egypt, Jordan, Lebanon, the Syrian Arab Republic, and the West Bank and Gaza. Jordan is faced with water deficits, and the West Bank and Gaza have limited surface water and renewable groundwater sources to meet their needs. Surface water and groundwater reserves are frequently renewed through rainfall, perennial river flow, and floods. The Nile in Egypt, the Euphrates and Tigris in Iraq and the Syrian Arab Republic, the Orentis and Latani in Lebanon and the Syrian Arab Republic, and the lower Jordan river in Jordan, represent major water sources for domestic, industrial, and agricultural requirements within these countries. In contrast, the GCC countries and Yemen are characterized by a harsh desert environment and are devoid of rivers and lakes. Their water resources consist of limited quantities of runoff resulting from flash floods, groundwater in the alluvial aquifers, and extensive groundwater reserves in the deep sedimentary formations. Some of these countries also rely on non-conventional water sources such as desalination of sea and brackish water, and limited use of renovated waste water.

Water allocation from the Nile river in Egypt is estimated at 56.5 billion cubic meters (bcm) per year, while the estimates for the Euphrates and Tigris in the Syrian Arab Republic and Iraq are 26.8 bcm and 76.9 bcm respectively. The average surface water flow in Lebanon is estimated at 2.5 bcm, while for Jordan it is 0.875 bcm. The major problem associated with the management of surface water is the transboundary nature of rivers shared by member and non-member countries. Typical examples are the Nile and Euphrates rivers, where the headwaters are located outside the ESCWA region. Lack of formal agreements for sharing flow from the Euphrates and the Tigris has created serious shortcomings in efficient water utilization. A number of large dams have been constructed on these rivers to regulate the water flow. The water stored behind the dams is the main source for domestic, irrigation, and industrial purposes in Egypt, Iraq, and the Syrian Arab Republic, and to a limited extent in Jordan and Lebanon. Surface water in the extremely arid GCC countries and Yemen consist of runoff generated by flash floods. The average annual volume of water generated from floods is estimated at 5.3 bcm. The intermittent nature of the flow renders it an unreliable source. The total average annual water generated in Saudi Arabia and Yemen is estimated at 2.2 bcm and 2.1 bcm respectively. The amount of surface water available in Oman and the United Arab Emirates is estimated at 0.92 bcm and 0.12 bcm, respectively. The remaining GCC countries have only negligible amounts of surface runoff.

Groundwater resources in the ESCWA region consist of water stored in both shallow and deep aquifers. Carbonate aquifers are predominant in Jordan, Lebanon, and the Syrian Arab Republic, while sandstone is predominant in northern Egypt and southern Iraq. Shallow quaternary wadi deposits located in the costal plains and inland basins, as well as the alluviums of rive flood plains, contain groundwater of good quality that is frequently recharged by perennial river flows. The shallow aquifers in Egypt's Nile delta, Iraq, Jordan, Lebanon, the Syrian Arab Republic, and the West Bank hold groundwater reserves adequate to partially meet their respective water requirements. This region also contains aquifers of large aerial extent in which significant reserves of groundwater, with varying degrees of salinity, are stored. Water quality in relation to salinity and its location at considerable depths, however, determine how the water can be used. Groundwater reserves of the shallow alluvial aquifers also represent one of the main sources for many of the countries of the Arabian Peninsula. Alluvial deposits along the main wadi channels and flood plains of drainage basins make up the shallow groundwater system in Kuwait, Oman, Saudi Arabia, the United Arab Emirates and Yemen. Groundwater in the shallow aquifers is the only renewable water source in these countries. Another main source of water in Bahrain, Kuwait, Qatar and Saudi Arabia is the non-renewable fossil groundwater stored in the sedimentary deep aquifers. These aquifers store significant amounts of groundwater that are thousands of years old. The major aquifers are the Saq, Tabuk, Wajid, Minjur-druma, Wacia-Biyadh, Dammam, Um Er-Radhuma, and Neogene. These aquifers cover two-thirds of Saudi Arabia and some of them extend into Bahrain, Kuwait, Oman, Qatar, the United Arab Emirates, and Yemen, as well as Iraq, Jordan, and the Syrian Arab Republic.

(cont.)
Non-conventional water sources are being utilized to supplement natural sources in order to satisfy water requirements in many of the ESCWA member countries. Brackish and sea water desalination has also become a viable alternative to meet raising demand. The GCC countries rely largely on desalination to help satisfy domestic water demand, and during the last 20 years these countries have become increasingly dependent on desalination to meet their water supply requirements. They have become, by necessity, world leaders in desalination of sea water and brackish groundwater for domestic consumption. The high salinity of groundwater in most GCC countries has compelled them to rely on desalinated water. Current desalinated water output, produced from numerous desalination plants located in Bahrain, Kuwait, Oman, Saudi Arabia, the United Arab Emirates, and Yemen, reached 1.7 bcm in 1995, compared to a world-wide capacity of 5.7 bcm. Limited amounts of desalinated water are being produced in Egypt, Iraq, and the Syrian Arab Republic, mainly through the private sector, in comparison to the GCC countries where desalination is relatively more common. These capacities cover all desalination plants and include numerous units in private sector ownership for industrial and other purposes. Kuwait, Saudi Arabia, and the United Arab Emirates, rely on large-sale plants capable of producing large volumes of water. Small plants with an estimated production of 33 mcm exist in Egypt, Iraq, Jordan, and the Syrian Arab Republic.

Existing waste water treatment facilities in many of the ESCWA member countries face difficulties in handling the ever increasing volumes of waste water generated by increased water consumption and urbanization. Waste water discharged from major urban centers is polluting shallow alluvial aquifers and the coastline, as well as causing urban water tables to rise. The main emphasis has been simply to dispose of waste water rather than to treat and reuse it, due to the extensive capital investment required for water treatment systems. Planning for full utilization of treated effluent remains in the early stages, and the regional treatment capacity is sufficient to handle only 40 percent of the domestic waste water generated. However, reuse of renovated waste water is being done in varying degrees for urban landscaping and irrigation. The total volume of reused renovated waste water and drainage water in the region is estimated at about 5.5 bcm, which is far less than the treated and untreated volume usually available from domestic water consumption. Reuse of treated effluent is currently estimated at 60 mcm in Egypt,
52 mcm in Jordan, and 50 mcm in the Syrian Arab Republic. Approximately 4.8 bcm of drainage water is being used for irrigation in Egypt. The use of waste water ranges from 217 mcm in Saudi Arabia to 9.1 mcm in Yemen. The ratio of reuse to domestic and industrial water requirements range from 27.7 to 30 percent. In the region as a whole, renovated waste water meets a small fraction of water demand. Water resources estimates, based on various hydrological and hydrogeological investigations carried out in the region, are given in the attached table.

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Water Resources in the ESCWA Region, 1995
(million cubic meters)

Country	Population	Conventional Water Resources			Non-conventional Water Resources			
	1994 MN (*)	Surface Water (**)	Ground Water (***)	Subtotal	Desalination	Waste water Reuse	Subtotal	TOTAL
Bahrain	0.55	0.2	90	90.2	75	9.5	84.5	174.70
Egypt	62.101	55,500	650	56,150	19	4,900	4,919	61,069.00
Iraq	19.092	76,880	1,500	78,380	7.4	NA	7.8	78,387.40
Jordan	4.057	660	275	935	2.5	52	54.5	989.50
Kuwait	1.62	0.1	182	182.1	240	83	323	505.10
Lebanon	3.481	2,500	12,000	14,500	1.7	NA	1.7	14,501.70
Oman	2.049	918	10,500	11,418	32	25	57	11,475.00
Qatar	0.532	1.35	2,500	2,501.35	92	25	117	2,618.35
Saudi Arabia	18.18	2,230	84,000	86,230	795	217	1,012	87,242.00
Syrian Arab Republic	13.733	22,688	3,000	25,688	2	50	52	25,740.00
United Arab Emirates	2.15	125	20,000	20,125	385	110	495	20,620.00
West Bank and Gaza	2.238	30	150	180	NA	NA	NA	180.00
Yemen	13.468	2,000	13,500	15,500	9	9.1	18.1	15,518.10
Total	143.251	163,532.65	148,347	311,879.7	1,660.6	5,480.6	7,141.2	319,020.85

Source: Compiled by the ESCWA Secretariat from country papers and international sources, 1994 and 1995.
(*) Demographic and related Socio-economic Data Sheets for the Countries of ESCWA, No. 8, 1995
(**) The flow of the Tigris and Euphrates Rivers will be reduced by upstream abstraction in Turkey.
(***) Shallow Aquifer Groundwater Reserve with Varying Water Quality.
NA Information not Available

(cont.)
The quality of drinking water and sanitation services in most of the ESCWA member countries has improved over the last 10 years, with the exception of Iraq, Lebanon, and Yemen. Progress has been made in achieving targets established for most urban areas. However, rural communities in the ESCWA region are still inadequately serviced in terms of safe drinking water, sanitation facilities and easy accessibility. The United Nations economic sanctions on Iraq have had an adverse impact on water supply and sanitation facilities. Availability of safe drinking water and sanitation is also a major problem in Gaza. The armed conflict in Yemen had a detrimental impact on water supplies and sanitation facilities. This situation will be further aggravated by the expected increase in urbanization to nearly 75 percent by the year 2025, which will exert greater pressure on water supply and sanitation facilities.

Imbalances between increasing water demand and existing limited water resources are being experienced by most of the ESCWA member countries. During the last decade, water demand in all sectors has increased dramatically as a result of high population growth, improvement of living standards, and efforts to achieve self sufficiency in food and industrial production. Currently, agriculture is the primary water consumer. Industrial water demand varies in the countries of the region, but it is roughly equivalent to domestic water requirements. Drainage and renovated waste water partially meets irrigation requirements in Egypt, Jordan, and the Syrian Arab Republic. Domestic and industrial water requirements for most GCC countries are met through desalination and a limited amount of groundwater from both shallow and deep aquifers. Yemen relies solely on groundwater resources for all sectors. In all GCC countries and Yemen, agricultural requirements are met through extraction of water from shallow alluvial aquifers located in the costal strips and inland basins, and from deep aquifers covering most of the Arabian Peninsula. In Saudi Arabia, rapid expansion of agricultural activities during the last two decades has resulted in substantial increases in water demand, leading to extensive mining of deep aquifers. Likewise, agricultural water demand has sharply increased in Bahrain, Oman, Qatar, and the United Arab Emirates, where groundwater reserves are being mined. This agricultural development is a direct result of government policies encouraging self-sufficiency in food production. Government incentives and subsidies have made it possible for large areas to be cultivated, placing a great strain on existing groundwater resources. Total water demand for agricultural, industrial, and domestic purpose in the ESCWA region reached 139 bcm in 1990, with the major consumers being Egypt, Iraq, and the Syrian Arab Republic. Water supply requirements are expected to reach 179.4 bcm by the end of the century, and 244.2 bcm by the year 2025, as shown in the table below. Agriculture, followed by industry, account for most of the water consumed.

Past and Projected Water Demand for the ESCWA Region (1990, 2000, and 2025)
(Millions of cubic meters)

COUNTRY	1990			2000			2025			Total Demand		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	1990	2000	2025
Bahrain	86	120	17	169	124	26	230	271	73	223	319	574
Egypt	2,700	49,700	4,600	3,100	59,900	6,100	4,700	69,100	10,900	57,000	69,100	84,700
Iraq	3,800	40,000	5,600	4,600	52,000	7,000	10,500	66,000	10,500	49,400	63,600	87,000
Jordan	190	650	43	340	1,090	78	750	1,090	175	883	1,508	2,015
Kuwait	295	80	8	375	110	105	670	140	160	383	590	970
Lebanon	310	750	60	550	1,200	150	1,100	1,600	450	1,120	1,900	3,150
Oman	81	1,150	5	170	1,270	85	630	1,500	350	1,236	1,525	2,480
Qatar	76	109	9	90	185	15	230	205	50	194	290	485
Saudi Arabia	1,508	14,600	192	2,350	15,000	415	6,450	16,300	1,450	16,300	17,765	24,200
Syrian Arab Republic	650	6,930	146	1,277	14,820	480	3,145	25,000	1,297	7,720	16,577	29,442
United Arab Emirates	513	950	27	750	1,400	30	1,100	2,050	50	1,490	2,180	3,200
West Bank and Gaza	78	140	7	263	217	18	787	415	61	225	498	1,263
Yemen	168	2,700	31	360	3,100	60	840	3,800	137	2,899	3,520	4,777
Total	10,455	117,879	10,745	14,394	150,416	14,562	31,132	187,471	25,653	139,079	179,372	244,256

Source: Compiled by the ESCWA Secretariat from Country Papers and International Sources, 1994 and 1995.
(1) Domestic
(2) Agriculture
(3) Industry

(Cont.)

Water requirements for the agricultural sector accounts for most of the water used in the ESCWA region as a whole, with demand estimated at 117.8 bcm in 1990, with a combined demand of 98.2 bcm for the group of countries that include Egypt, Iraq, Jordan, Lebanon, the Syrian Arab Republic, and the West Bank and Gaza, and 19.6 bcm for the group of countries including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates, and Yemen. In 1990, the percentage of agricultural demand ranged from 62 to 90 percent of the total water demand in the northern ESCWA region, while in the south it ranged from 21 to 93 percent. Agricultural water demand in the ESCWA region is projected to reach 150.4 bcm and 187.5 bcm in the years 2000 and 2025, as shown in the previous table. Industrial activities in most of the ESCWA member countries have also contributed to an increase in total water requirements, although not as dramatically as the agricultural sector. Industrial water demand reached 10.5 bcm in 1990 in Egypt, Iraq, Jordan, the Syrian Arab Republic, and West Bank and Gaza, and only 0.3 bcm in the GCC countries and Yemen. The percentage of industrial water demand ranged from 0.4 to 11.3 percent, with lower percentages reported for the GCC countries. Countries with relatively well established industrial infrastructures include Egypt, Iraq, and the Syrian Arab Republic. The industrial sector is still fairly limited in the southern region. Industrial demand is projected to reach 14.6 bcm and 25.6 bcm in the years 2000 and 2025 respectively, with the highest demand in Egypt, Iraq, and the Syrian Arab Republic. Industrial production in most of the ESCWA countries is geared towards consumer goods and petroleum refinement. Many industries in the region, especially in Egypt, Iraq, Jordan, Saudi Arabia, and the Syrian Arab Republic, rely on raw materials derived from agricultural products. Most industrial activities are confined close to major urban centers, requiring competition with the domestic sector to satisfy water requirements. In urban areas with concentrated industrial activities, this sector represents the major water consumer in relation to domestic requirements. In most of the GCC countries, field development and petrochemical industries are considered to be water-use intensive. Industries in Egypt and Iraq utilize surface water from major rivers, while the remaining ESCWA member countries rely on groundwater supplemented with surface water, desalination, and a limited amount of recycled water. Domestic water requirements represent only a small fraction of the total water requirements in the ESCWA member countries. In 1990, domestic requirements were estimated at 10.5 bcm, which is expected to reach 14.4 and 31.1 bcm in the years 2000 and 2025 respectively , as a result of increased population growth and improved living standards. Domestic demand has been estimated at 8.7 bcm for countries with large populations such as Egypt, Iraq, the Syrian Arab Republic, and Saudi Arabia, which represents 4.7 to 34 percent of the total water demand. In comparison, domestic demand for the remaining countries was estimated at 1.7 bcm, accounting for 5.8 to 77 percent of the total demand, as shown in the following table.

Proportion of Water Demand by Sector to Total Demand in the ESCWA Region (1990, 2000, and 2025)
(Percentage)

Country	1990			2000			2025		
	Domestic	Agriculture	Industrial	Domestic	Agriculture	Industrial	Domestic	Agriculture	Industrial
Bahrain	38.6	53.8	7.6	53.0	38.9	8.2	40.1	47.2	12.7
Egypt	4.7	87.2	8.1	4.5	86.7	8.8	5.5	81.6	12.9
Iraq	7.7	81.0	11.3	7.2	81.8	11.0	12.1	75.9	12.1
Jordan	21.5	73.6	4.9	22.5	72.3	5.2	37.2	54.1	8.7
Kuwait	77.0	20.9	2.1	63.6	18.6	17.8	69.1	14.4	16.5
Lebanon	27.7	67.0	5.4	28.9	63.2	7.9	34.9	50.8	14.3
Oman	6.6	93.0	0.4	11.1	83.3	5.6	25.4	60.5	14.1
Qatar	39.2	56.2	4.6	31.0	63.8	5.2	47.4	42.3	10.3
Saudi Arabia	9.3	89.6	1.2	13.2	84.4	2.3	26.7	67.4	6.0
Syrian Arab Republic	8.4	89.7	1.9	7.7	89.4	2.9	10.7	84.9	4.4
United Arab Emirates	34.4	63.8	1.8	34.4	64.2	1.4	34.4	64.1	1.6
West Bank and Gaza	34.7	62.2	3.1	32.8	43.6	3.6	62.3	32.9	4.8
Yemen	5.8	93.1	1.1	10.2	88.1	1.7	17.6	79.5	2.9
Total	24.3	71.6	4.1	26.2	67.6	6.3	32.6	58.1	9.3

Source: Compiles by the ESCWA Secretariat from Papers and International sources, 1994 and 1995.

(Cont.)
Based on current trends and projections, shortages are expected to increase as a result of increased demand and limited renewable supplies in most ESCWA countries. Current water resources such as perennial surface water, renewable groundwater, desalination, and reclaimed waste water are insufficient to meet expected water demand. Thus, in order to offset the imbalance between supply and expected demand, mining of groundwater, especially from the deep aquifers, may be required to meet agricultural and other demands. Expected domestic and industrial demand increases in the next 30 years may also require the construction of additional desalination and treatment plants to produce water and treat waste water, for most countries in the region, especially the GCC countries, unless strict integrated management approaches, including water conservation measures and effective management schemes, are implemented and good quality groundwater is used solely for domestic and industrial use. If present domestic consumption patterns continue unaltered, most countries of the ESCWA region will be required to allocate financial resources to the construction of hydraulic structures, distribution systems, and the construction of new desalination plants and support facilities with capacities capable of handling increased demand. A large number of waste treatment plants will also be required to handle the resulting wastes. This huge investment may result in a considerable economic strain, especially in those countries with limited financial resources. However, proper planning and integrated development, and management of water resources, along with just allocation of shared water resources through equitable agreements, will contribute significantly towards alleviating water deficits. Many countries of the region have already taken steps towards the implementation of management programmes, including proper planning and conservation measures, to promote reduced water consumption and optimal allocation of water resources.

As far as the implementation of the objectives of various programme areas outlined in chapter 18 of Agenda 21, each ESCWA country has its priority depending on the national situation of its water supply/demand and future forecast. Along this line, the ESCWA secretariat, in addition to rendering technical assistance for capacity building in the area of water management, undertook implementation of the following activities during 1995-1996: report on the introduction of appropriate mechanisms to promote regional cooperation in the water sector; implementation of a field project to investigate the shared basalt aquifers in the Syrian Arab Republic and Jordan; assessment of water resources quality in the ESCWA region; and convened an expert group meeting on the implementation of chapter 18 of Agenda 21 for integrated water management in the region. Furthermore, the secretariat organized two training courses: (i) for using remote sensing data and GIS techniques in hydrology and hydrogeology, and (ii) an ad hoc expert group meeting on water legislation.

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AGENDA 21 CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS

No information	

AGENDA 21 CHAPTER 20: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS WASTES, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN HAZARDOUS WASTES

No information	

AGENDA 21 CHAPTER 21: ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE-RELATED ISSUES

No information	

AGENDA 21 CHAPTER 22: SAFE AND ENVIRONMENTALLY SOUND MANAGEMENT OF RADIOACTIVE WASTES

No information	

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AGENDA 21 CHAPTERS 23-32: MAJOR GROUPS

The role of major groups are also covered under the various chapters of Agenda 21. The following is a summary of main objectives outlined in Agenda 21. Please check the appropriate boxes and describe briefly any important steps or obstacles.

No information	

AGENDA 21 CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS

Financial resources and mechanisms are also covered under each sectoral chapter of Agenda 21 where relevant. This summary highlights broader national financial policies, domestic and external (including ODA)

A qualitative evaluation of the implementation of Agenda 21 in the ESCWA region indicates progress in some areas. However, the physical state of the regional environment provides a negative picture. Against the background of deteriorating environmental conditions one would have expected increased international financial flows to the region. However, the total ODA percentage from OECD to Egypt, Morocco, the Syrian Arab Republic, Jordan, Yemen, and Tunisia registered a sharp decline from 16.3 percent for 1983-1984 to only 8.7 percent for 1993-1994 (source: OECD, Creditors Reporting System, 1995). The importance of innovative financing was mentioned in para 33.16 of Agenda 21, in which it is also mentioned that new ways of generating new public and private sources should be explored. Such innovative financing mechanisms may include debt-for-nature swaps for the highly indebted countries of the region (Egypt, Jordan, and Yemen). Common interests and complementary needs of industrial and developed countries must provide the basic rationale for financing Agenda 21. In such spirit, cooperation must include not only ODA, but also trade, debt management, private investment and capital flows, private sector development, access to technology, and the strengthening of civil society as a whole.

In terms of sectoral components of sustainable development in the Arab region as a whole, each country has its own path based on its specific problems and constraints; hence, there is no blue print for regional sustainable development at the macro level. The tentative orders of magnitude of financial requirements and investment costs to promote a more environmentally sustainable development are given in the table below for a selected number of Arab countries. These figures are based on World Bank estimates. As can be seen, the investment requirements for sound environment management range between $58 and $78 billion over the next ten years. The estimate does not include investment in energy and water efficiency improvements.

Tentative 10 Years Cost and Financing of Agenda 21 for Selected Arab Countries (1990-2000)	
Problem/Action	**Total Investment (Billions of 1990 US$)**
1. Environmental institutional capacity building: staffing, training, public information, monitoring and laboratory equipment.	0.1 - 0.3
2. Industrial sector clean up: air pollution.	4-6
3. Fuel substitution from high to low sulphur fuel oils, or to natural gas.	4-5
4. Substitution unleaded gasoline for 50% of consumption.	6-7
5. Industrial sector clean up: -water pollution, -hazardous and toxic waste.	 8-14 3-4
6. Full urban and rural coverage of safe water and sanitation, including 55% urban coverage of municipal waste water treatment (above and beyond per capita investment equivalent to investment levels in the 1980s).	19-15
7. Natural resource management activities on 10% of land potentially threatened by erosion.	10-15
8. Full coverage of safe municipal solid waste management.	4-6
Total (approximately)	58-78

Source: The World Bank, (December 1994) Forging a partnership for environmental action. An environmental strategy toward sustainable development in the Middle East and North Africa.

AGENDA 21 CHAPTER 34: TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING

Transfer of environmentally sound technology, cooperation and capacity-building is also covered under each sectoral chapter of Agenda 21 where relevant. This summary highlights broader national policies and actions relating to chapter 34.

The Arab countries, as other developing countries, have expressed concern in various international fora at the lack of environmentally sound technology transfers (ESTs) on a concessional basis. Chapter 34 of Agenda 21 called for new policies and programmes to promote and facilitate the transfer of ESTs along with supportive measures and capacity building. The transfer of technology for development to the developing countries, as envisaged in Agenda 21 and other international agreements, however, faces a series of challenges under the intellectual property rights provision of the GATT agreement. It is for the same reason that representatives of developing countries have been highlighting this concern in various sessions of the Commission on Sustainable Development and emphasizing the importance of access to ESTs in the public domain as well as facilitating transfer of ESTs through innovative legislative and market mechanisms.

The ESCWA countries lack the means to use economic instruments and other non-regulatory measures as a flexible and efficient means for promoting sustainability, to ensure compatibility between environmental and technological policies. The measures are intended to provide incentives for industry to meet environmental standards in the most cost-efficient way, and to stimulate the transfer, adaptation and development of environmentally sound technologies and sustainable practices. As existing technology policies in the region do not provide strong enough inducements for the widespread development and use of ESTs, a new policy mix consisting of and leading to regulatory instruments, economic and fiscal measures, information dissemination, human resources development, the establishment of national technical promotion institutions, and research and development capacities, is in order. However, the precise approach will depend on national circumstances.

AGENDA 21 CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

No information	

AGENDA 21 CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING

No information	

AGENDA 21 CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR CAPACITY-BUILDING IN DEVELOPING COUNTRIES

National capacity building is also covered under sectoral chapters.
Donors: You may wish to describe here how Agenda 21 has influenced your ODA policies in this area.
Developing countries: You may wish to describe any new national mechanisms for capacity building - and any changes in technical cooperation.

The Arab Ministerial Declaration on Environment and Development (initiated by ESCWA in cooperation with the League of Arab States/Council of Arab Ministers Responsible for the Environment - CAMRE) and the Regional Action Programme for Sustainable Development (RAPSD) adopted by CAMRE, have provided added impetus for Arab regional cooperation in the implementation of Agenda 21. The Ministerial Declaration took into consideration the environmental and socio-economic conditions of the entire region. This, and the need for cooperation in the follow-up of global initiatives, namely Agenda 21 of UNCED, was also reflected. The Declaration covers all policy directions, reaffirms commitments of all Arab countries to promote sustainable development, and resolves to implement national plans dealing with natural resources, environment and sustainable development, taking into consideration national priorities.

The RAPSD provides a blueprint for action to promote sustainable development in the Arab region. It is also a timely response to the major sustainable development issues identified in the annual meetings of the CAMRE, which, through the JCEDAR, sets out a concrete course of national action for the Arab region. It envisages the achievement of 141 tangible results through 13 priority programmes in line with regional concerns ranging from desertification, water resources management, to ESTs. The actions called for in the RAPSD for the implementation of Agenda 21 may be required at several levels:

- Regional: to deal with sub-regional and regional issues of a transboundary nature and common interest, and activities of capacity building in the coastal area which can be efficiently and cost-effectively dealt with at sub-regional/ regional levels in support of national strategies, i.e. desertification, biodiversity, etc;

- National: to deal with environmental issues which are mainly national in character such as industrial pollution control, urbanization, energy and transportation issues;

- Local: for which decentralization from a national to a local level is essential to manage in a cost-effective way environmental problems such as water supply and sanitation, poverty alleviation and local area development.

The RAPSD envisages capacity building at national level through regional inter-Arab cooperation. Further, it proposes to promote regional cooperation and combating oil pollution and wastes at sea. Such cooperation is promoted through the networks of national institutions responsible for desertification, marine pollution, indicators, information and awareness, to enable exchange of experience and knowledge through the exchange of information and expertise. To achieve this objective, ESCWA provides capacity building and technical assistance to promote sustainable development, through its regional advisory services and its leading coordination for the promotion of Agenda 21.

AGENDA 21 CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS

Ch. 38: Brief summary of any particular UN System response affecting this country/state:	
Please refer to discussion of ESCWA activities in all chapters.	

AGENDA 21 CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

Ch. 39: International Legal Instruments are covered under the relevant sectoral chapters. This is a listing of major agreements/conventions (not already covered) entered into and relevant to Agenda 21:

Not relevant for ESCWA as an organization.

AGENDA 21 CHAPTER 40: INFORMATION FOR DECISION-MAKING

This chapter is also covered under sectoral and other chapters of this profile. The matrix below gives an overview of how national authorities rate the available information for decision making.

Rating of available data and information suitable for decision-making

Agenda 21 Chapters		Very good	Good	Some good data but many gaps	Poor	Remarks
2.	International cooperation and trade					
3.	Combating poverty					
4.	Changing consumption patterns					
5.	Demographic dynamics and sustainability					
6.	Human health					
7.	Human settlements					
8.	Integrating E & D in decision-making					
9.	Protection of the atmosphere					
10.	Integrated planning and management of land resources					
11.	Combating deforestation					
12.	Combating desertification and drought					
13.	Sustainable mountain development					
14.	Sustainable agriculture and rural development					
15.	Conservation of biological diversity					
16.	Biotechnology					
17.	Oceans, seas, coastal areas and their living resources					
18.	Freshwater resources					
19.	Toxic chemicals					
20.	Hazardous wastes					
21.	Solid wastes					
22.	Radioactive wastes					
24.	Women in sustainable development					
25.	Children and youth					
26.	Indigenous people					
27.	Non-governmental organizations					
28.	Local authorities					
29.	Workers and trade unions					
30.	Business and industry					
31.	Scientific and technological community					
32.	Farmers					
33.	Financial resources and mechanisms					
34.	Technology, cooperation and capacity-building					
35.	Science for sustainable development					
36.	Education, public awareness and training					
37.	International cooperation for capacity-building					
38.	International institutional arrangements					
39.	International legal instruments					
40.	Information for decision-making					